

probable single malfunction in the system will not result in a hazardous condition due to unsymmetrical jettisoning of, or inability to jettison, fuel.

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#### OIL SYSTEM

##### § 25.1011 General.

(a) Each engine must have an independent oil system that can supply it with an appropriate quantity of oil at a temperature not above that safe for continuous operation.

(b) The usable oil capacity may not be less than the product of the endurance of the airplane under critical operating conditions and the approved maximum allowable oil consumption of the engine under the same conditions, plus a suitable margin to ensure system circulation. Instead of a rational analysis of airplane range for the purpose of computing oil requirements for reciprocating engine powered airplanes, the following fuel/oil ratios may be used:

(1) For airplanes without a reserve oil or oil transfer system, a fuel/oil ratio of 30:1 by volume.

(2) For airplanes with either a reserve oil or oil transfer system, a fuel/oil ratio of 40:1 by volume.

(c) Fuel/oil ratios higher than those prescribed in paragraphs (b)(1) and (2) of this section may be used if substantiated by data on actual engine oil consumption.

##### § 25.1013 Oil tanks.

(a) *Installation.* Each oil tank installation must meet the requirements of § 25.967.

(b) *Expansion space.* Oil tank expansion space must be provided as follows:

(1) Each oil tank used with a reciprocating engine must have an expansion space of not less than the greater of 10 percent of the tank capacity or 0.5 gallon, and each oil tank used with a turbine engine must have an expansion space of not less than 10 percent of the tank capacity.

(2) Each reserve oil tank not directly connected to any engine may have an

expansion space of not less than two percent of the tank capacity.

(3) It must be impossible to fill the expansion space inadvertently with the airplane in the normal ground attitude.

(c) *Filler connection.* Each recessed oil tank filler connection that can retain any appreciable quantity of oil must have a drain that discharges clear of each part of the airplane. In addition, each oil tank filler cap must provide an oil-tight seal.

(d) *Vent.* Oil tanks must be vented as follows:

(1) Each oil tank must be vented from the top part of the expansion space so that venting is effective under any normal flight condition.

(2) Oil tank vents must be arranged so that condensed water vapor that might freeze and obstruct the line cannot accumulate at any point.

(e) *Outlet.* There must be means to prevent entrance into the tank itself, or into the tank outlet, of any object that might obstruct the flow of oil through the system. No oil tank outlet may be enclosed by any screen or guard that would reduce the flow of oil below a safe value at any operating temperature. There must be a shutoff valve at the outlet of each oil tank used with a turbine engine, unless the external portion of the oil system (including the oil tank supports) is fireproof.

(f) *Flexible oil tank liners.* Each flexible oil tank liner must be approved or must be shown to be suitable for the particular application.

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##### § 25.1015 Oil tank tests.

Each oil tank must be designed and installed so that—

(a) It can withstand, without failure, each vibration, inertia, and fluid load that it may be subjected to in operation; and

(b) It meets the provisions of § 25.965, except—

(1) The test pressure—

(i) For pressurized tanks used with a turbine engine, may not be less than 5 p.s.i. plus the maximum operating